REMARKS

Claims 1-36 are pending in the present application.

In the office action mailed August 22, 2005 (the "Office Action"), the Examiner objected to the drawings under 37 C.F.R. 1.83(a). The Examiner also rejected claims 13-25 under 35 U.S.C. 112, second paragraph, and further rejected claims 1-3, 27, and 28, under 35 U.S.C. 103(a) as being unpatentable over European Patent Application EP 0 707 262 to Hau *et al.* (the "Hau application") in view of European Patent Application EP 0 300 633 to Ohta *et al.* (the "Ohta application"). Claims 4-12 and 29-36 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, and claim 26 is allowable.

With respect to the Examiner's objection to the drawings, 37 C.F.R. 1.83(a) provides that "[t]he drawings in a nonprovisional application must show every feature of the invention specified in the claims. However, *conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation.*" (Emphasis added). Although a "cubic transition model between two of the input samples," as recited in claims 3 and 28, is not expressly shown in the drawings, such cubic models are conventional features disclosed in the description. Consequently, detailed illustration of the "cubic transition model" feature is not essential for a proper understanding of the invention. Figure 3 of the present application illustrates a sine-model resampling circuit 312 and a non-sine-model resampling circuit 308. As described in the specification, based on a calculated angular frequency value, either the sine-model resampling circuit 312 or the non-sine-model resampling circuit 308 is used to generate output sample. As further described in the specification, the non-sine-model resampling circuit 308 "can perform conventional resampling operations that are well known to those of ordinary skill in the art." *See* page 7, lines 13-14. An example of a conventional resampling operation is a cubic model, which as described in the Background, at page 2, lines 15-19, has been used in applications for resampling graphics data. As further described in the specification, "implementation of a cubic model evaluation block is well understood by those of ordinary skill in the art." *See* page 12, lines 22-27. Consequently, the illustration of the non-sine-model resampling circuit 308 in Figure 3 in addition to the

description of the cubic model which can be used in the non-sine-model resampling circuit 308 is sufficient to provide a proper understanding of the invention. Therefore, the Examiner's objection to the drawings under 37 C.F.R. 1.83(a) should be withdrawn.

Claim 26 has been amended to delete an unnecessary "." (period) from line 9.

Claims 1 and 27 have been amended to more clearly recite the claimed subject matter of the respective claim.

With respect to the rejection of claims 13-25 under 35 U.S.C. 112, second paragraph, claims 13, 16, and 23 have been amended to remove the phrase, "may be." Therefore, the Examiner's rejection of claims 13-25 should be withdrawn.

It will be apparent from the amendments, and the comments below, that the amendments to claims 1, 13, 16, 23, 26, and 27 were made independent of the cited references. None of previously mentioned amendments narrow or further limit the scope of the invention as recited by the respective claim. Generally, the amendments make explicit what is implicit in the claim, add language that is inherent in the unamended claim, or merely redefine a claim term that is previously apparent from the description in the specification. Consequently, the amendments should not be construed as being "narrowing amendments," because these amendments were not made for a substantial reason related to patentability.

As previously mentioned, claims 1-3, 27, and 28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Hau application in view of the Ohta application.

Claims 1 and 27 are patentable over the Hau and Ohta applications because the combined teachings of the Hau and Ohta applications fail to teach or suggest the combination of limitations recited by claims 1 and 27.

The Hau application is directed to a filter selection circuit for a filter using sample phase quantization in generating an estimated output sample point. A system employing sample phase quantization includes a fixed number of filters or a filter with a fixed number of "frequency characteristics." The number of filters in an ideal system for resampling is quantized into the number of available filters in the system. *See* col. 2, lines 20-26. Sample phase quantization, as described in the Hau application, is used to estimate an output sample point by selecting the filter that is closest to the desired interpolation point. *See* col. 2, lines 12-17. A conventional system, as further explained in the Hau application, uses equations that involve

division and multiplication operations to calculate the "quantized phase," which is then used determine which filter in the system is to be selected to produce the new sample. The particular equations are equations (2) and (3) shown at col. 2, lines 27-30. In contrast, the Hau filter selection circuit calculates the quantized phase by using a simplified calculation that requires an addition operation and a right bit-shift operation. *See* col. 3, lines 38-45. The equations for the simplified calculation are equations (4) and (5) shown at col. 4, lines 51-58.

An example of the system including the filter selection circuit is shown in Figure 1. The FIFO 10 provides the input data samples which are processed by the digital filter 20. *See* col. 3, lines 51-58. The output samples generated by the digital filter 20 are provided to the FIFO 40. *See* col. 4, lines 42-46. A generator and control circuitry 30 provides a filter phase address location signal FPA to the digital filter 20 that is used to select the frequency characteristic that is used to filter the input data samples to produce the new output data samples. *See* col. 4, lines 36-42 and lines 47-50. The digital filter 20 is a polyphase digital filter having programmable filter characteristics that can be programmed as a time-division multiplexed (TDM) plurality of frequency characteristics. The TDM frequency characteristics are applied in a determined sequence to generate new data samples that occur at a rate that is different from the sampled data signal for performing signal rate conversion. *See* col. 4, lines 1-17.

Claim 1 recites a method for calculating output sample values from input graphics data having corresponding input sample values. The method includes, in pertinent part, determining from a sample set of input graphics data a first model from which output sample values are calculated where the frequency value ω is in the range, and determining from the sample set a second model from which output sample values are calculated where the frequency value ω is out of the range.

The Examiner cites material at col. 3, lines 31-38 and at col. 4, lines 36-55 as describing these features. However, the cited material is not directed to subject matter for which it has been cited by the Examiner. The material at col. 4, lines 36-55, as previously discussed, describes the particular equations used in the Hau system for calculating a quantized phase location Q and the provision of Q to the digital filter 20 in the form of a filter phase address location signal FPA. The digital filter 20 uses the frequency characteristic selected by the FPA signal to generate output data samples, which are then provided to the FIFO 40. The material at

col. 3, lines 31-38 summarizes the novel filter selection circuit. As previously discussed, the filter selection circuit calculates a quantized phase value that is used to select a filter characteristic from a number of predetermined filter characteristics that is to be used to generate an estimated output sample point. In other words, one of a plurality of programmable filter characteristics of the digital filter 20 is selected by the quantized phase location Q, which is calculated by the filter address generator and control circuitry 30. As used in the Hau application, the "frequency characteristic" or "filter characteristic" that is selected is not analogous to the first and second models recited in claim 1. The selection of the particular frequency characteristic is really a selection of one of the programmable filters of the digital filter 20 that is "nearest" to the point at which the output sample is supposed to be interpolated. As described in the Hau application, this is merely the process of sample phase quantization. The difference between conventional resampling systems and the one described in the Hau application is the use of a novel filter selection circuit for calculating the quantized phase. The quantized phase, however, is then used for conventional sample phase quantization with the digital filter 20 to generate an output sample. Neither the calculation of the quantized phase, nor the calculation of an estimated output sample by the digital filter 20 is analogous to determining either a first or second model to be used in calculating output samples based on an angular frequency that is calculated from a set of the input samples, as recited in claim 1.

Moreover, with respect to the rejection of claim 1, the Examiner argues that "if a number of frequency characteristics is provided for comparison and selection in the [Hau] resampling system, the frequency value from the input data samples is therefore determined from a range of frequency values." *See* the Office Action at pages 4-5. The Examiner concludes that "the frequency value from the input graphics data (or data samples) to determine the output sample values [is] calculated from a determining range of frequency values." *See* the Office Action at page 5. Even assuming that this is true, the argument does not present the features recited in claim 1. That is, even if it is true that the output sample values are calculated from a range of frequencies, this is still not analogous to determining a first model for calculating output sample values where the angular frequency is in a range and determining a second model instead where the angular frequency is not in the range. In the first case, the frequency value is used to

determine the output sample values, whereas in the second case, the angular frequency is used to decide between using a first or second model in calculating output samples.

The Examiner has cited the Ohta application for teaching the use of a set of samples to calculate an angular frequency for a sine-wave model that is used to output sample values. *See* the Office Action at page 5. Assuming for the sake of argument that the Examiner's characterization of the Ohta application is accurate, the Ohta application does not make up for the deficiencies of the Hau application, as previously discussed.

For the foregoing reasons, claim 1 is patentable over the Hau application in view of the Ohta application. Claim 27 recites features similar to the features of claim 1 that are failed to be disclosed by the Hau application. For example, claim 27 recites a resampling circuit operable to determine from the sample set a sinusoidal model from which the resample output values are calculated where the frequency value w is in the frequency range and further operable to determine from the sample set a non-sinusoidal model from which the resample output sample values are calculated and where the angular frequency value w is not in the frequency range. As previously discussed with respect to claim 1, the Hau application does not disclose these features. Consequently, as with claim 1, the Ohta application fails to make up for the deficiencies of the Hau application, and as a result, claim 27 is patentable over the Hau application in view of the Ohta application.

Claims 2 and 3, which depend from claim 1, and claim 28, which depends from claim 27, are similarly patentable over the Hau application in view of the Ohta application based on their dependency from a respective allowable base claim. That is, each of the dependent claims further narrows the scope of the claim from which it depends, and consequently, if a claim is dependent from an allowable base claim, the dependent claim is also allowable.

Therefore, the rejection of claims 1-3, 27, and 28 under 35 U.S.C. 103(a) should be withdrawn.

All of the claims pending in the present application are in condition for allowance. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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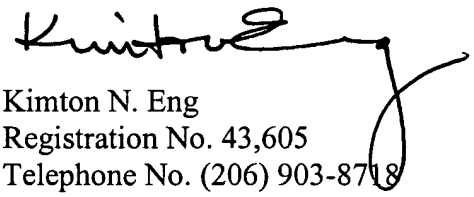

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